

# USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

## Enhanced Preliminary Assessment Report:

Rural Ridge Army Housing Units  
Rural Ridge, Pennsylvania

October 1989

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prepared for

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**SUMMARY**

The Rural Ridge housing facility located in Rural Ridge, Pa., does not represent any imminent or substantial threat to human health or the environment. There is no evidence to suggest that hazardous or toxic constituents have ever been released from this property.

This property was originally developed in conjunction with a Nike missile battery located in Rural Ridge, Pa. However, no wastes associated with the operation and maintenance of the missile and tracking systems have ever been delivered to or managed at this housing property. Furthermore, this housing property existed independently of the missile launcher area and integrated fire control portions of the battery with respect to water, sewer, or electrical utilities.

No actions are recommended prior to release of this property. This assumes that the property will continue to be used for residential housing.

*Handwritten note:*  
The Rural Ridge housing facility, located in Rural Ridge, Pa., was developed in conjunction with the Nike missile battery, located in Rural Ridge, Pa.



## 1 INTRODUCTION

In October 1988, Congress passed the Defense Authorization Amendments and Base Closure and Realignment Act, Public Law 100-526. This legislation provided the framework for making decisions about military base closures and realignments. The overall objective of the legislation is to close and realign bases so as to maximize savings without impairing the Army's overall military mission. In December 1988, the Defense Secretary's ad hoc Commission on Base Realignment and Closure issued its final report nominating candidate installations. The Commission's recommendations, subsequently approved by Congress, affect 111 Army installations, of which 81 are to be closed. Among the affected installations are 53 military housing areas, including the Rural Ridge housing area addressed in this preliminary assessment.<sup>1</sup>

Legislative directives require that all base closures and realignments be performed in accordance with applicable provisions of the National Environmental Policy Act (NEPA). As a result, NEPA documentation is being prepared for all properties scheduled to be closed or realigned. The newly formed Base Closure Division of the U.S. Army Toxic and Hazardous Materials Agency is responsible for supervising the preliminary assessment effort for all affected properties. These USATHAMA assessments will subsequently be incorporated into the NEPA documentation being prepared for the properties.

This document is a report of the enhanced preliminary assessment (PA) conducted by Argonne National Laboratory (ANL) at the Army stand-alone housing area in Rural Ridge, Pa.

### 1.1 AUTHORITY FOR THE PA

The USATHAMA has engaged ANL to support the Base Closure Program by assessing the environmental quality of the installations proposed for closure or realignment. Preliminary assessments are being conducted under the authority of the Defense Department's Installation Restoration Program (IRP); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 91-510, also known as Superfund; the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499; and the Defense Authorization Amendments and Base Closure and Realignment Act of 1988, Public Law 100-526.

In conducting preliminary assessments, ANL has followed the methodologies and procedures outlined in Phase I of the IRP. Consequently, this PA addresses all documented or suspected incidents of actual or potential release of hazardous or toxic constituents to the environment.

In addition, this PA is "enhanced" to cover topics not normally addressed in a Phase I preliminary assessment. Specifically, this assessment considers and evaluates the following topical areas and issues:

- Status with respect to regulatory compliance,
- Asbestos,
- Polychlorinated biphenyls (PCBs),
- Radon hazards (to be assessed and reported on independently),
- Underground storage tanks,
- Current or potential restraints on facility utilization,
- Environmental issues requiring resolution,
- Health-risk perspectives associated with residential land use, and
- Other environmental concerns that might present impediments to the expeditious "excessing," or transfer and/or release, of federally owned property.

## 1.2 OBJECTIVES

This enhanced PA is based on existing information from Army housing records of initial property acquisition, initial construction, and major renovations and remodeling performed by local contractors or by the Army Corps of Engineers. The PA effort does not include the generation of new data. The objectives of the PA include:

- Identifying and characterizing all environmentally significant operations (ESOs),
- Identifying property areas or ESOs that may require a site investigation,
- Identifying ESOs or areas of environmental contamination that may require immediate remedial action,
- Identifying other actions that may be necessary to address and resolve all identified environmental problems, and
- Identifying other environmental concerns that may present impediments to the expeditious transfer of this property.

### 1.3 PROCEDURES

The PA began with a review of Army Housing records located at the Charles E. Kelly Support Facility, Oakdale, Pa., the week of July 16-19, 1989. Additional information was obtained from the Army Corps of Engineers District Office, DEH Division, Building S-630052 near Oakdale, Pa., on July 17. A site visit was conducted at the Rural Ridge housing area on July 19, 1989, at which time additional information was obtained through personal observations of ANL investigators. Photographs were taken of the housing units and surrounding properties as a means of documenting the condition of the housing units and immediate land uses. Site photographs are appended.

All available information was evaluated with respect to actual or potential releases to air, soil, and surface and ground waters.

Attempts to gain access to the housing units through involvement of the senior occupant were unsuccessful. Therefore, internal inspection of the units was not possible during the site visit. However, ANL investigators revisited the property on September 13, 1989, at which time the interiors of all the units were inspected.



## 2 PROPERTY CHARACTERIZATION

### 2.1 GENERAL PROPERTY INFORMATION

The Rural Ridge housing units are located in southwest Pennsylvania, in the town of Rural Ridge, Allegheny County. The entire property area is 6.32 acres, with a 0.14-acre easement.<sup>2</sup> The town of Rural Ridge has a 1984 population estimate of less than 800.<sup>3</sup> Figures 1 and 2 show the general location of the facility.<sup>4</sup> The housing units were constructed in 1958.<sup>5</sup> No additional major construction has taken place on the property since that time. The Army Corps of Engineers for the Oakdale region, southwest of Pittsburgh, is responsible for major renovations or upgrading within the area.<sup>6</sup>

### 2.2 DESCRIPTION OF FACILITY

Figure 3 presents the site plan of the housing property.

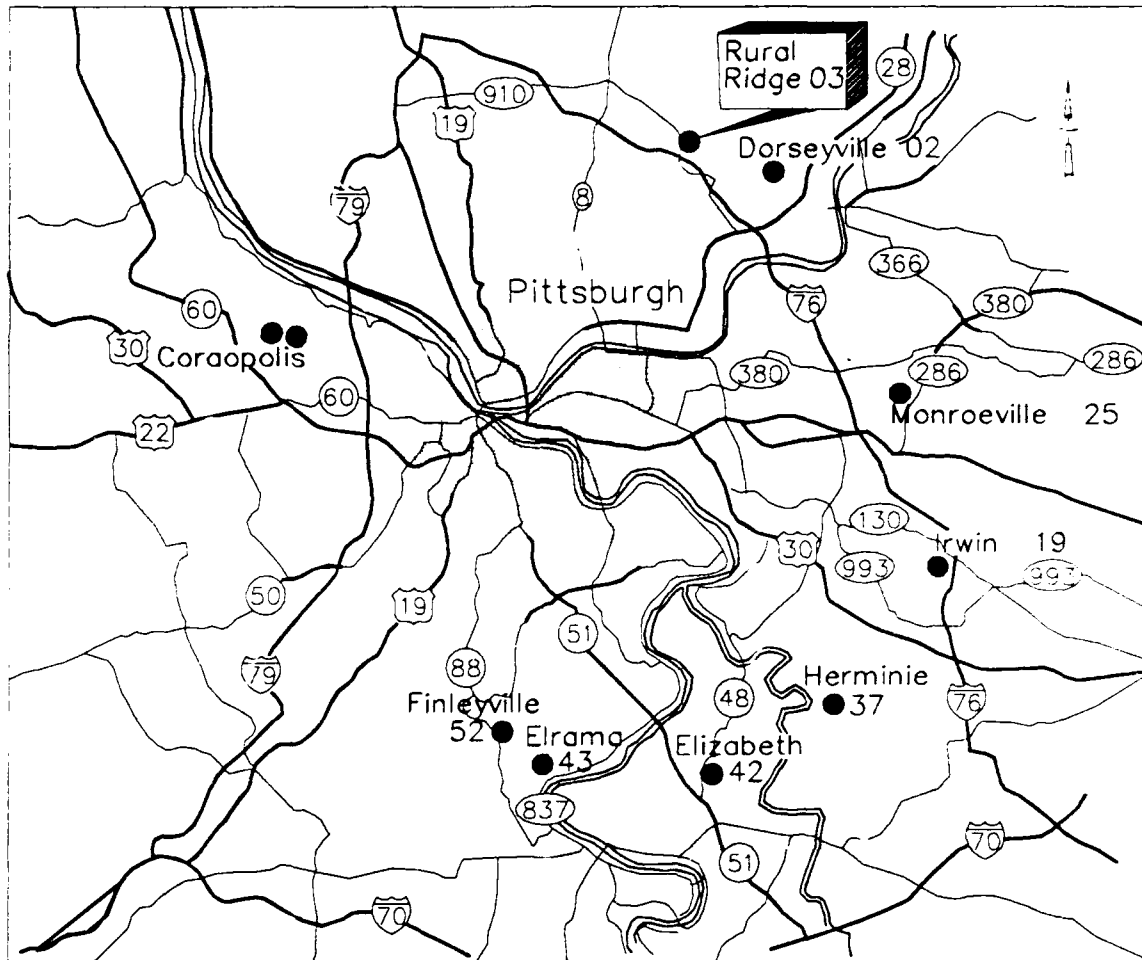
#### Housing Units

The Rural Ridge housing area consists of 12 "Capehart"-style houses that have two or three bedrooms, one family unit, a carport, and storage room. Capehart is a model name of the builder, National Homes. The houses are built on concrete slabs with no structures underground.<sup>5</sup> Water, gas and sewer lines are imbedded into the foundation slab.

The houses are in good condition with vinyl siding, and tar and pea gravel covered roofs. The units have asphalt floor tile with drywall ceilings and walls, gas forced-air heat, and 40-gallon hot water heaters. All units are supplied with concrete patios with storage sheds, and wooden fences around the patio. Each unit has a 4 foot by 6 foot exterior storage room and two garbage receptacles (no longer in use). The terrace is paved.

#### Utilities

Since development of the property, the housing units have been supplied with city water. No drinking water wells exist on the property. The property is hooked up to city power, and all telephone poles and transformers on site are the responsibility of West Pennsylvania Power Co. Natural gas is supplied from T.W. Phillips Gas. Water is supplied by the Municipal Authority Township of Harmar. The site has two fire hydrants, one on each street. The sanitary waste is delivered by sewer to the publicly owned sewage treatment plant operated by the Deer Creek Drainage Basin Authority.



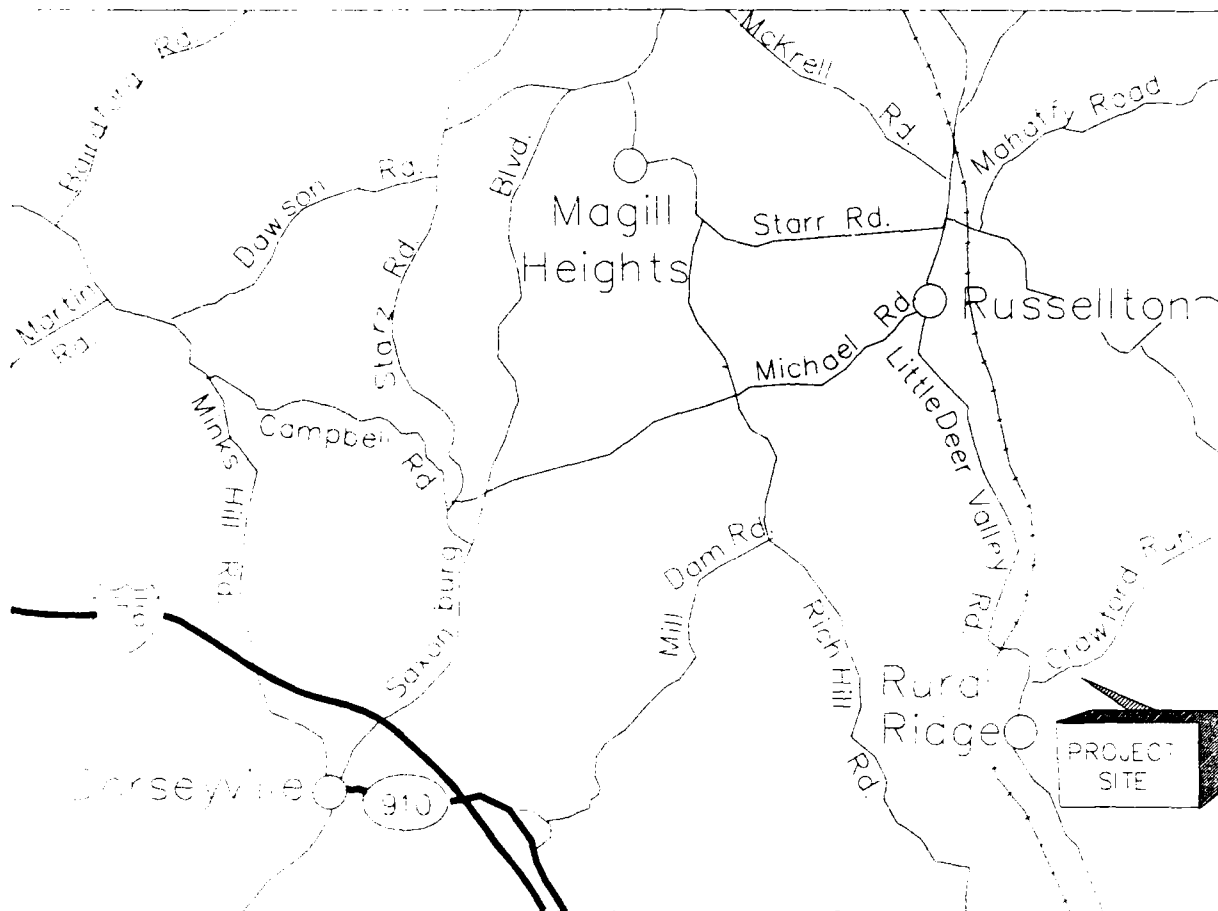
**FIGURE 1 Location Map of Pennsylvania Army Housing Facilities**

### **Sewage**

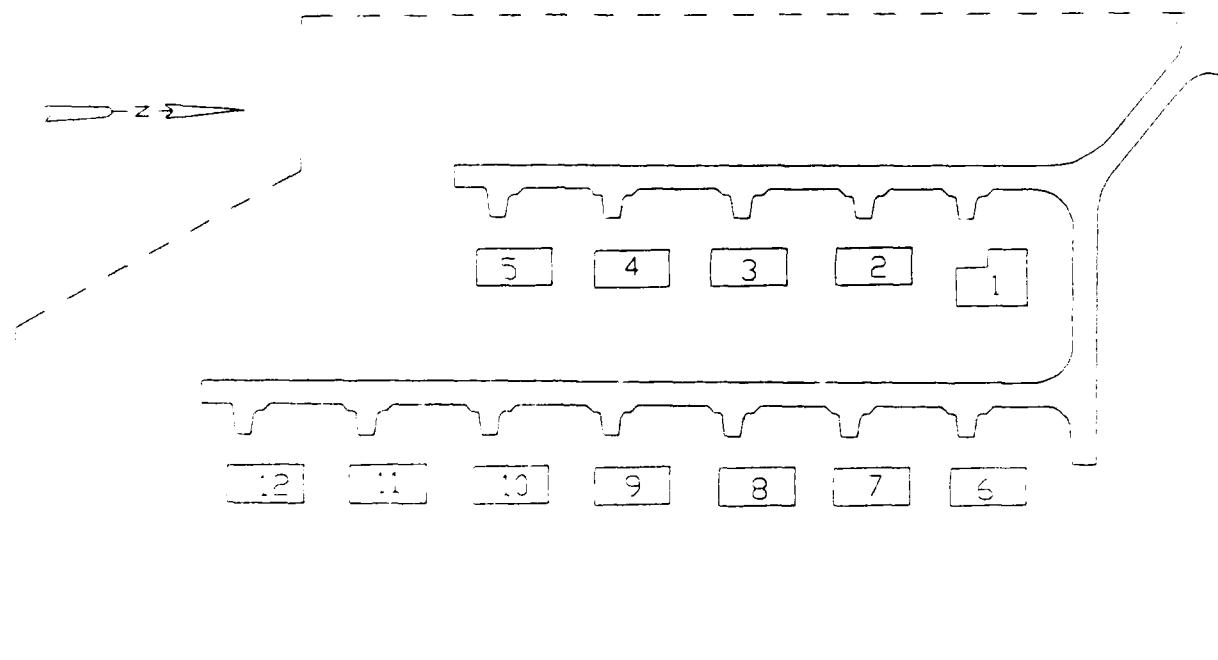
Each housing unit is connected to a common sewage line operated by the Deer Creek Drainage Basin Authority. This system was incorporated in December of 1974. Prior to 1974, sewage was handled in an on-site treatment facility consisting of sand filters and septic system. The old sewage treatment facility, located about 200 feet west of Crawford Run road at the north end of the site, was abandoned in place.

### **Storm Drainage Systems**

Storm water is removed from the property by open ditches or surface runoff through a culvert. Concrete gutters behind each row of houses drain into a swale to a small creek.



**FIGURE 2 Vicinity Map of Rural Ridge Army Housing Units**



**FIGURE 3 Site Plan Map of Rural Ridge Army Housing Units**

### **Other Permanent Structures or Property Improvements**

The site has a bus shelter near the road at the entrance to the facility.

## **2.3 PROPERTY HISTORY**

### **2.3.1 Nike Defense Program and Typical Battery-Level Practices**

Generic information on the national Nike antiaircraft defense program has been compiled in two studies, one commissioned by the Army Corps of Engineers<sup>7</sup> and the other by the U.S. Army Toxic and Hazardous Materials Agency.<sup>8</sup> In both studies, independent contractors relied on information contained in unclassified documents related to the Nike surface-to-air missile program, including engineering drawings and specifications (for the facilities and the missiles themselves), interviews with Army personnel participating in the Nike program, and operations manuals and directives relating to the operations and maintenance of Nike facilities. Taken together, these two reports represent the most complete assemblage of generic information on the Nike missile program from an environmental perspective. Salient points from both reports are condensed below.

At its zenith in the early 1960s, the Nike program included 291 batteries located throughout the continental United States. The program was completely phased out by 1976, with many of the properties sold to private concerns or excessed to state or local governments for nominal fees.

Nike Ajax missiles were first deployed in 1954 at installations throughout the continental United States, replacing, or in some cases augmenting, conventional artillery batteries and providing protection from aerial attack for strategic resources and population centers. Typically, Nike batteries were located in rural areas encircling the protected area. The Ajax was a two-stage missile using a solid-fuel booster rocket and a liquid-fuel sustainer motor to deliver a warhead to airborne targets.

The Ajax missile was gradually replaced by the Nike Hercules missile, introduced in 1958. Like the Ajax, the Hercules was a two-stage missile, but it differed from the Ajax in that its second stage was a solid-fuel rather than liquid-fuel power source and its payload often was a nuclear rather than conventional warhead. Ajax-to-Hercules conversions occurred between 1958 and 1961 and required little change in existing Nike battery facilities. A third-generation missile, the Zeus, was phased out during development and consequently was never deployed.

A typical Nike missile battery consisted of two distinct and separate operating units, the launch operations and the integrated fire control (IFC) operations. The two operating areas were separated by distances of less than two miles, with lines of sight between them for communications purposes. A third separate area was also sometimes part of the battery. This area was typically equidistant from the two battery operating sites and contained housing for married personnel assigned to the battery. Occasionally, these housing areas also contained battalion headquarters, which were responsible for a number of Nike batteries.

Depending on area characteristics and convenience, the housing areas were often reliant on the launch or IFC sites for utilities such as potable water, electrical power, and sewage treatment. In those instances, buried utility lines connected the housing area to one or both of the other battery properties. It is also possible, however, that housing areas were completely independent of the missile launcher and tracking operations. In those instances, the necessary utilities were either maintained on the housing site or purchased from the local community. In many localities, as the character of the land area around the housing units changed from rural to suburban or urban, communities extended utility services to the housing unit locations, in which case conversions from independent systems to community systems were made.

A large variety of wastes was associated with the operation and maintenance of Nike missile batteries. Normally encountered wastes included benzene, carbon tetrachloride, chromium and lead (contained in paints and protective coatings), petroleum hydrocarbons, perchloroethylene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, and trichloroethylene. Because of the rural locations of these batteries, and also because very few regulatory controls existed at that time, most of these wastes were managed "on-site." (Unused rocket propellants and explosives, however, would always have been returned to central supply depots and not disposed of on-site.) It is further conceivable that wastes generated at one of the Nike properties may have been transferred to its companion property for management or disposal.

Wastes related to missile operation and maintenance would not have been purposely transferred from a battery operating area to a housing area with no facilities for waste management or disposal. In some instances, however, the sewage treatment facilities for all Nike battery properties were located at the housing area; that possibility cannot be automatically ignored. Finally, where housing areas received various utilities from either of the operating areas, it is also possible that wastes disposed of on those other properties may have migrated to the housing area via the buried utility lines. And since decommissioning of the Nike batteries did not normally involve removal of buried utility or communication lines, any such contaminant migration is likely to have gone unnoticed.

### **2.3.2 Rural Ridge Housing Units**

The Rural Ridge housing area was first built in 1958 to provide family housing for military personnel assigned to the Rural Ridge Nike battery. Although this housing area was originally developed to support a Nike battery, there is no evidence that Nike missile-related wastes were ever delivered to or managed at this property. Furthermore, since its original construction, this housing area operated independently of the Nike battery with respect to water, sewer, and electrical utilities.

Twelve single-family houses were erected on the property. Other property improvements included the installation of concrete patios with fences and driveways. Each house has a concrete curb and carport. Smoke and heat detectors have been installed. The site has seven three-bedroom houses and five two-bedroom houses. The site is divided into two sections; each street has a single row of houses on the east side with five houses on the lower street and seven houses on the upper street. The floor

areas of the houses are as follows: one three-bedroom unit is 1,307 square feet; each of the six remaining three-bedroom units is 1,117 square feet; and each of the five two-bedroom units is 1,013 square feet.

Since the initial property development in 1958, a bus shelter has been erected at the entrance to the housing area. None of the original structures has been razed. However, renovations have taken place. These included the installation of smoke/heat detectors, and, in 1974, the site was connected to city sewers operated by the Deer Creek Drainage Basin Authority.

## **2.4 ENVIRONMENTAL SETTING AND SURROUNDING LAND USE**

The Rural Ridge housing area is located on the side of a hill. The two streets that make up the site are on different levels. Just north of the site on the same side of Crawford Run Road is a Methodist Church and churchyard cemetery. West of the site the terrain is gently rolling to steep slopes along gullies and streams. The location of the site has natural storm drainage runoff to the west. Industrial construction is in progress on the east side of the site on the back side of the hill. The south side is the continuation of the deep valley covered with trees and shrubs. The climate is generally mild with a mean temperature of 56°F. Average annual rain fall is 40 inches. The soils, which are deep and well-drained, are Piedmont type with some Coastal Plain influence. Subsoils are friable clay.

## **2.5 GEOLOGIC AND HYDROLOGIC SETTINGS**

The Rural Ridge housing area is located in the northern part of the Eastern Coal Province of the lower Allegheny River Basin, covering an area of 4,077 miles. The Eastern Coal Province is divided into 24 hydrologic reporting areas. The divisions are based upon hydrologic factors, location, size, and mining activity. Hydrologic units or parts of units are combined to form each area. Area 3 is located in the northern part of the Eastern Coal Province of which Rural Ridge is a part.

The area, which includes part or all of Jefferson, Clearfield, Armstrong, Butler, Allegheny, Cambria, Indiana, Somerset, and Westmoreland Counties, lies within the Allegheny River basin, and includes parts of the Monongahela, Allegheny, Pottsville, and Conemaugh coal fields.<sup>9</sup>

Major streams in the area in addition to the Allegheny River are the Kiskiminetas River and the Redbank, Mahoning, Crooked, and Buffalo creeks. Area 3 is in the Appalachian Plateaus Physiographic Province. The rock types in the area are predominantly sandstone and shale containing thin beds of limestone and coal. The rocks are divided into six stratigraphic units, four in the Pennsylvanian System and two in the Mississippian System. The stratigraphic order of the rock units from youngest to oldest are: the Monongahela Formation, Conemaugh Formation, Allegheny Group, and Pottsville Group of Pennsylvanian age; and the Mauch Chunk Formation and Pocono Group of Mississippian age. Coal beds and limestone are common in the Pennsylvanian System.

The area has humid continental type climate. Mean rainfall in the area ranges from 36 to 48 inches. Ground water levels are usually lowest during September to November with the lowest levels occurring around the beginning of October. Surface drainage through the area includes an additional drainage from 7,671 square miles of the Allegheny River basin.

The area is underlain by the Monongahela, Allegheny, Pottsville, and Conemaugh coal fields. The Conemaugh and Allegheny fields are the most extensive. Coal production in the Area 3 counties increased from 46,200,000 tons in 1974 to 53,000,000 tons in 1977, but dropped to about 50,000,000 tons in 1978.

### **3 ENVIRONMENTALLY SIGNIFICANT OPERATIONS**

#### **3.1 SEWER SYSTEM**

Before the city sewer system was connected to the housing site no serious problems were observed. The Rural Ridge housing site is located in an area with very well-drained soil, and the area is not subject to flooding.

#### **3.2 POLE-MOUNTED TRANSFORMERS**

There are three pole-mounted transformers that service the housing site located in Rural Ridge. The transformers are owned and operated by the West Penn Power Co. No evidence of leaks or ground staining near the poles was observed during the site visit.

#### **3.3 ASBESTOS**

The housing units all have asphalt floor tiles that contain asbestos. The floor tiles, however, were found to be in good condition. Inspections of the interiors of the houses on September 13, 1989, revealed that there was no insulation whatsoever on water pipes.



#### **4 KNOWN AND SUSPECTED RELEASES**

Because of the nature of the facility, no major releases or impacts to the environment exist at Rural Ridge. No known hazardous wastes or hazardous materials have ever existed on the site.

## 5 PRELIMINARY ASSESSMENT CONCLUSIONS

Although these housing units were originally developed in support of a Nike missile battery, all available documentation indicates the fully independent operation of this housing property from other Nike battery activities. No Nike-related wastes were delivered to this property for management or disposal. Furthermore, since this property was independent of the Nike missile operations with respect to all necessary utilities, there is no possibility of migration of Nike-related wastes along buried utility lines.

Real property records indicate that asbestos-containing asphalt floor tiles were used in all housing construction at this property. The floor tiles were all in good condition, however. No other asbestos-containing materials could be found.

## 6 RECOMMENDATIONS

The Rural Ridge housing facility does not represent any imminent or substantial threat to human health or the environment. There is no evidence to suggest that hazardous or toxic constituents have ever been released from this property.

No actions are necessary prior to release of this property. This assumes that the property will continue to be used as residential housing.

## REFERENCES

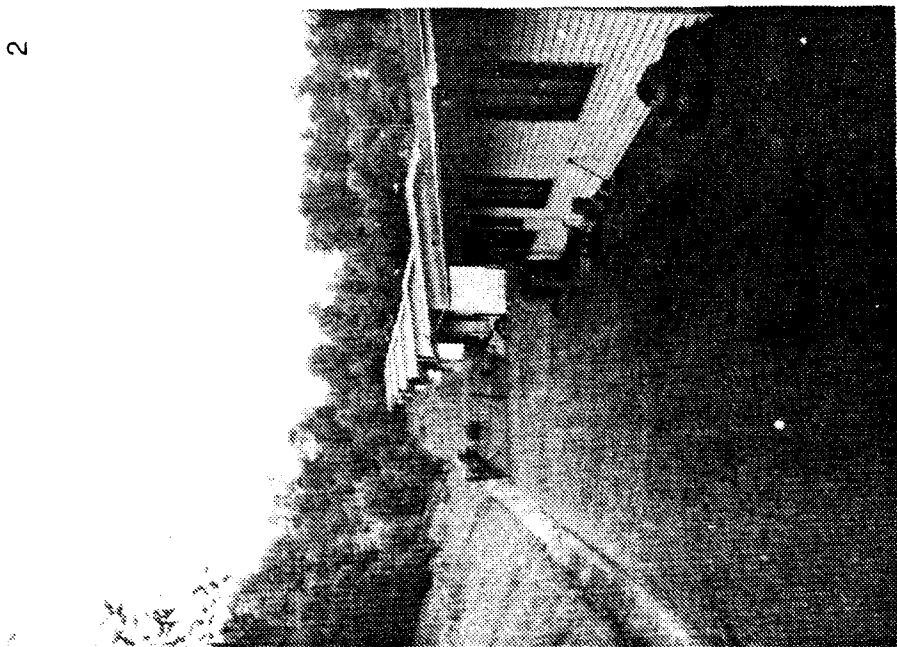
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9. Herb, W.J., et al., *Hydrology of Area 3, Eastern Coal Province, Pennsylvania*, U.S. Geologic Survey, Water Resources Investigations Open File Report 81-538 (Sept. 1981).



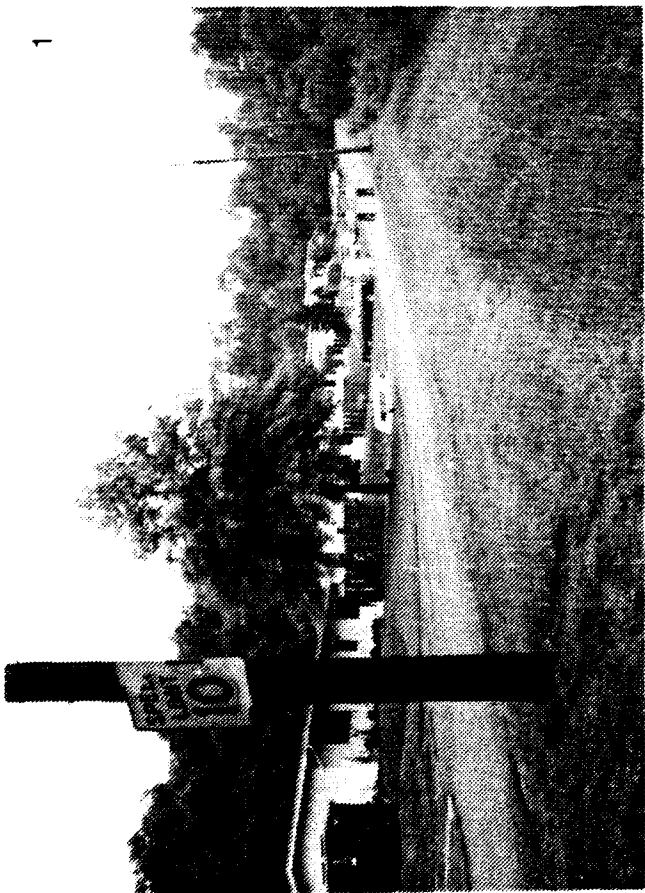
**APPENDIX:**  
**PHOTOGRAPHS OF RURAL RIDGE HOUSING FACILITY**  
**AND SURROUNDING LAND**



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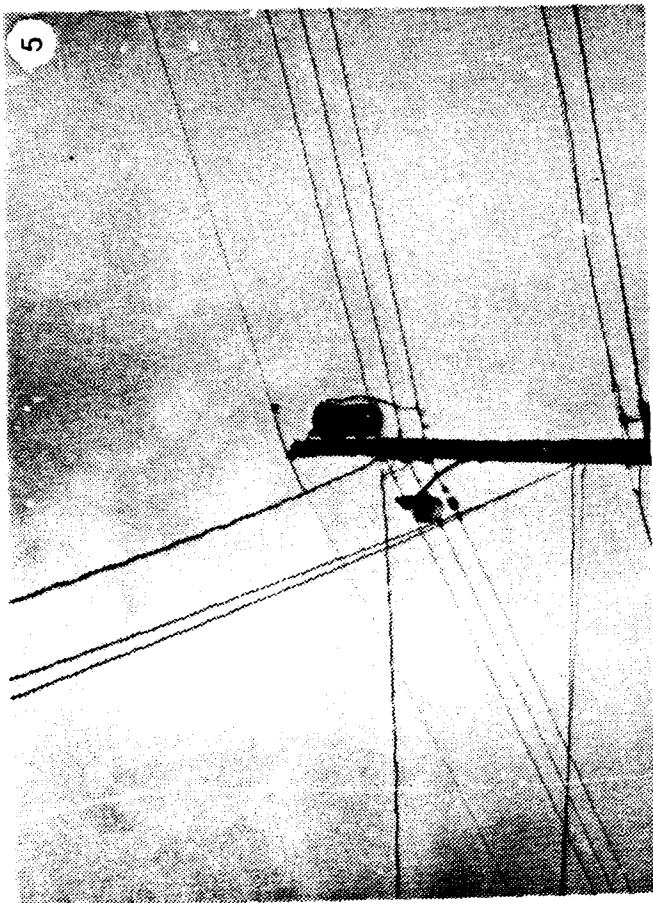
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### IDENTIFICATIONS OF PHOTOGRAPHS

1. A row of houses on upper level of housing area at Rural Ridge; a similar row is located at a lower level.
2. A view from the backside of the upper-level row of houses; an open storm drain (seen as a clear gully) runs from the bottom left towards the center of this view.
3. Play area for children, across the street from the houses.
4. A church yard and cemetery at the north end of the housing area; another church yard at the south end is not shown.
5. An electrical transformer mounted at the top of a utility pole; area's transformers are the property of the U.S. Government.

